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ABSTRACT

This document presents data on the student performance of North Carolina students for the year 1994. Section 1 traces the development of school and student accountability measures, outlines the implementation of actions designed to enhance program equity throughout the state, and describes specific program and student performance standards as they have been established and modified over the past 20 years. The second section compares the performance of North Carolina students with that of students in other states and across the nation. Data are presented for the National Assessment of Educational Progress (NAEP), the Iowa Test of Basic Skills (ITBS), and the Scholastic Assessment Test (SAT). Overall, recent performance trends are mixed, but encouraging. Although black students have made greater gains on the average than white students and compare favorably with black students nationally, there remains a large gap between black and white students in North Carolina. Section 3 summarizes results of continuing efforts to make advanced educational opportunities available to a greater number of students statewide. An overview of the state's changing definition of "student competence" is provided in the fourth section. Section 5 summarizes the effects of 20 years of reform, the move to address national standards, and the redefinition of competence. In 1995, the state raised the achievement floor, the level at which all students seeking a high-school diploma must perform. Policymakers believe that students should be not only minimally competent, but proficient in the basic skills required of workers and learners in a technologically oriented society. (LMI)

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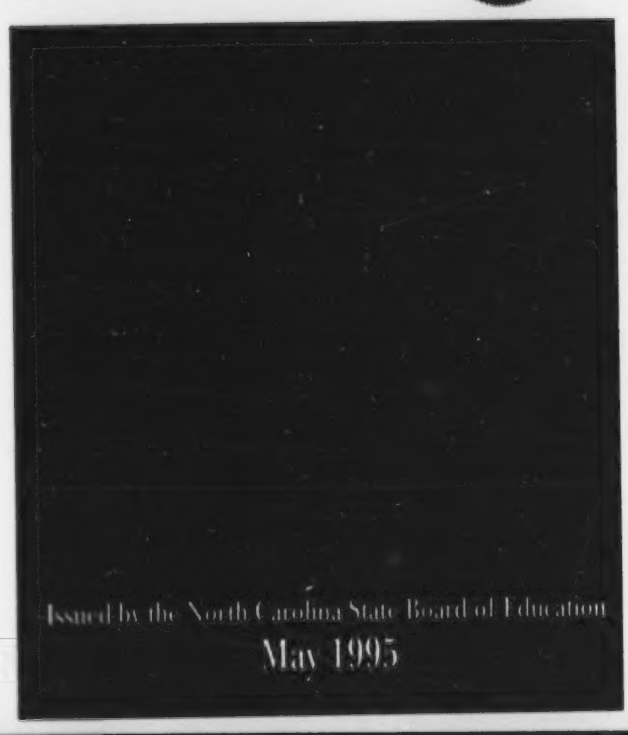
State of the State

Education Performance in North Carolina 1994



Issued by the North Carolina State Board of Education

May 1995

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Introduction

The State Board of Education is examining the structure and functions of the State public school system with a view to improving student performance, increasing local flexibility and control, and promoting economy and efficiency. Out of the examination will come a new plan for public education in North Carolina developed by the State Board and the General Assembly.

Reform in education occurs periodically and is necessary in order to ensure that children and youth are as well prepared as possible for the evolving needs of the workplace and the intellectual demands of continued education. The current reform movement in North Carolina can be traced back over a period of nearly two decades, and, in anticipation of changes that lie ahead for the State's schools, it is informative to review educational results related to the movement that is coming to a close. That review is the theme of this, the 1994 edition of *State of the State—Education Performance in North Carolina*.

State of the State is a report required by the School Improvement and Accountability Act, enacted by the General Assembly in 1989. It is one of several reports provided annually to evaluate the state's public school system. It is the only report that monitors the health of North Carolina's school system as a whole and compares it to public school systems in the nation and other states.

Like other reports that evaluate North Carolina public schools, the *State of the State* report uses student academic performance as a primary indication of how well our schools are serving the educational needs of children and youth. It also includes information that helps define the context within which the state's schools operate.

Five major sections comprise the report.

Section 1. Twenty Years of Education Reform
This section traces the development of school and student accountability measures, outlines the implementation of actions designed to enhance program equity throughout the state, and describes specific program and student performance standards as they have been established and modified over the past twenty years.

Section 2. Accountability Measures: Addressing National Standards
North Carolina student performance in comparison to the performance of students in other states and in the nation is addressed. Data are presented for the National Assessment of Educational Progress (NAEP), the Iowa Test of Basic Skills (ITBS), and the Scholastic Assessment Test (SAT).

Section 3. Program Equity: Participation in Academic Courses
Results of continuing efforts to make advanced educational opportunities available to a greater number of students statewide are summarized.

Section 4. Standards: The Changing Meaning of Competence
The evolution in the state's definition of student competence in academic performance is described and illustrated.

Section 5. Summary
The effects of twenty years of reform, of addressing national standards, and of redefining competence are viewed as a composite.

State of the State-Education Performance in North Carolina is prepared by the Office of Accountability Services in the Department of Public Instruction and is issued by the State Board of Education.

Raleigh, North Carolina
May 1995

Section 1: Twenty Years of Education Reform

For nearly two decades, North Carolina has experienced a continuing series of legislative and policy initiatives directed toward reforming public school education and continuously improving the level of student performance throughout the state. The reforms have developed along three interrelated strands—accountability measures, program equity, and standards—to form the chronology that follows.

ACCOUNTABILITY MEASURES

- Minimum Competency Testing
- Annual Testing

The first statewide testing legislation, enacted by the General Assembly in 1977, consisted of two major elements: (1) testing to assure that high school graduates possess skills and knowledge necessary to function in society and (2) annual testing to assess the effectiveness of the educational process and to provide parents with information about the relative progress of their students.

Actual testing began in 1978 with the first administration of the Minimum Competency Test (MCT), for which a passing score was required for high school graduation. Also beginning in 1978, the California Achievement Tests (CAT) were administered in every school system at selected elementary grade levels, providing measures of reading, language, and mathematics.

The two testing program elements have continued in place since 1978, with several significant modifications along the way, including the addition of other elementary school tests and the introduction of end-of-course testing in the secondary schools.

As a result of 1989 legislation, a major change in the annual testing program occurred. The legislation provided for a system of end-of-grade and end-of-course tests to measure implementation of the state's Standard Course of Study (see Program Equity below). These tests provide strong and reliable measures of student performance based upon state curriculum and state standards.

- **National Comparisons**

  In addition to end-of-grade and end-of-course tests, nationally normed tests are given to provide a comparison of North Carolina student performance with students nationwide. Generally, one of the following three measures is used:

  The Iowa Test of Basic Skills (ITBS). First given to a representative group of fifth grade and eighth grade students in 1993, these tests measure achievement in reading, language, and mathematics.

  The National Assessment of Educational Progress (NAEP). Since 1990, North Carolina has been able to compare state performance on these tests of reading and mathematics to other states and to the nation.

  The Scholastic Assessment Test. This test provides a third comparison for use by policy makers and the public.

- **School System Accreditation**

  For many years the State Board of Education provided a school system accreditation process with voluntary participation. When the Basic Education Program (described later) was enacted, participation became required and minimum standards for a set of student performance and school program indicators became the basis of the program.

- **School Improvement and Accountability Act**

  A new dimension to the state's accountability program came in 1989 with adoption by the General Assembly of the School Improvement and Accountability Act, popularly known as Senate Bill 2. In addition to the end-of-grade and end-of-course testing system noted above, the legislation provided for the Performance-based Accountability Program (PBAP) and the issuing of annual reports cards for each local school system.

- **Performance-based Accountability Program**

  PBAP challenges school systems to move beyond accreditation standards and to be held accountable for student and school performance goals established locally. Although participation is voluntary, all school systems have elected to take part each year. PBAP's features include more flexibility for schools in implementing education programs, options to request waivers of some state laws and regulations in order to reach their goals, and incentives in the form of differentiated pay provide bonuses to personnel who reach their performance goals.

  Since 1989, amendments to PBAP legislation and policy actions taken by the State Board of Education have expanded selected components of the program, placing more responsibility for planning and implementation at to the building level and increasing emphasis on parent and community involvement in both system wide and school-level plans.

- **Annual Report Cards**

  The state's accountability procedures now include a highly-visible system for reporting results produced by schools to the public.

  The first annual Report Card, The *State of School Systems in North Carolina*, was issued for the 1989-90 school year. For the state as a whole and for each school system, it summarizes the outcomes of education based primarily on student achievement.

  A companion document, *The Administrative Supplement to the Report Card.* is published by each school system and contains detailed information on the system's student performance.

  Beginning for the 1993-94 school year, school systems also are required to publish reports of performance for individual schools.

  This publication, *State of the State - Education Performance in North Carolina*, was first issued by the State Board of Education for 1992.

PROGRAM EQUITY

- **Basic Education Program**

Implementation of the state constitutional mandate to provide for "a general and uniform system of free public schools...wherein equal opportunities shall be provided for all students" has been a topic of debate for many generations. In recent years, the most direct attempt to address the issue of program equity throughout the state was taken by the General Assembly in 1985 with enactment of legislation directing the State Board of Education to adopt a basic education program.

Although full implementation has been subject to budget limitations, the Basic Education Program (BEP) has been viewed in North Carolina as the programmatic cornerstone of education reform activities in the 1980s and early 1990s. The premise of BEP is that there is a common core of knowledge and skills which every child should command when he or she graduates from high school. The program also includes support services, promotion standards, special programs, programs for exceptional children, equipment and materials, staffing ratios, staff development, and facility standards.

- Standard Course of Study

The basic curriculum is outlined in the Standard Course of Study (SCS) and represents the program which should be provided to all children in North Carolina. Initially adopted in 1986, the SCS has seen important revisions from time to time since to insure that its programs provide students with the skills and knowledge needed for the 21st century.

The annual testing program described earlier is designed to assess the how well key aspects of the Standard Course of Study are being taught and learned. And, although its purpose and importance for accountability have been altered recently, the accreditation program was initially intended to measure the degree to which BEP has been implemented. The report card system now serves that purpose. In addition, increasing percentages of students enrolling in more advanced high school courses provides additional evidence of improvement in program equity throughout the state.

STANDARDS

- **Setting Student Performance and Program Standards**

In North Carolina, responsibility for setting statewide program and student performance standards rests with the State Board of Education in accordance with statutes enacted by the General Assembly. All school systems and all students are expected to meet their respective standards, although local boards of education may adopt even higher standards for their schools and students. Periodically over the past two decades, both program and student performance standards have been established or raised along several dimensions statewide.

- **Minimum Competency Standards for Students**
- **New Student Proficiency and Program Standards**

The first ever minimum competency requirement for high school graduation was set in 1978. That early standard remained in effect until February, 1995, when the State Board raised the floor for obtaining a high school diploma in North Carolina. At that time, the State Board adopted a new rule specifying that to receive a diploma in this state students must not merely demonstrate minimum competency. They must demonstrate that they are fully proficient in both reading and mathematics, with fully proficient defined as scoring at or above Achievement Level III on the eighth grade end-of-grade tests.

Students not performing at this level are to be provided remediation and accelerated instruction beyond and different from their regular course work.

- **New Program Standards**

From a program standpoint, the State Board and General Assembly have been raising standards for almost a decade.

In 1985 the BEP required that the state's standard course of study be upgraded and that accreditation standards be tied to the program.

In 1991, the State Board increased graduation standards to include Algebra I and biology for all students and added three required, one each in mathematics, science, and social studies.

By 1993, most of the newly revised standard course of study was in place, representing higher expectations and aligned with national course standards.

In Spring, 1993, the new state testing program for grades 3 to 8 aligned with the revised standard course of study was administered for the first time.

And, students graduating in the class of 2000 and beyond must demonstrate proficiency in the use of computers.

- **Improving Standards**

The work of raising standards is an ongoing process. At the time this report was being prepared, the State Board had under consideration a series of recommendations for General Assembly action that would continue the education reform movement in North Carolina and, as a consequence, impact upon program and performance standards now in place.

- **Standards and Accountability Commission**

The Standards and Accountability Commission, established by the General Assembly in 1993, has as its charge the development of "high and clearly defined education standards for the public schools of North Carolina." The standards are to outline the knowledge and skills every high school graduate should possess. The Commission is to recommend the standards and a system of assessments for those standards to the State Board in 1996. By the year 2000 every graduating high school senior will be required to achieve the standards as a condition for receiving a diploma.

From the inception of an education reform to the emergence of positive results takes time. It is fair to say that reforms initiated in North Carolina nearly two decades ago have served their purpose and produced desirable results. But, the needs of today's students have required that additional reforms and higher standards be put in place—and, indeed, they have been. Only now is their impact beginning to be seen. Information in the State of the State sections that follow provides some evidence of the progress that has been made as a consequence of these reforms and a basis for drawing conclusions regarding the work that remains.

Section 2. Addressing National Standards

National Assessment of Educational Progress

The National Assessment of Educational Progress (NAEP) is a Congressionally mandated project that has collected and reported information since the 1960s on what American students as a whole know and what they can do. Its assessments are given to representative samples of youths attending both public and private schools in grades four, eight, and twelve. Since 1990 NAEP has provided assessment results on a voluntary, state-by-state trial basis. The Trial State Assessment Program included eighth-grade mathematics in 1990 and 1992, fourth-grade mathematics in 1992, and fourth-grade reading in 1992 and 1994. A special administration of the NAEP eighth grade mathematics assessment was given in North Carolina in 1994 at the State's request.

Fourth Grade Reading

Proficiency Descriptions

BASIC LEVEL	Students should demonstrate an understanding of the overall meaning of what they read. They should be able to make relatively obvious connections between the text and their own experience.
PROFICIENT LEVEL	Students should be able to demonstrate an overall understanding of the text, providing inferential as well as literal information. The connection between the text and what the student infers should be clear.
ADVANCED LEVEL	Students should be able to generalize about a reading selection; they should be able to judge texts critically and give thorough answers that indicate careful thought.

Fourth Grade Reading Levels
(Percent)

	At or Above Advanced	At or Above Proficient	At or Above Basic	Below Basic
1992				
North Carolina	4	22	53	47
Southeast	3	19	52	48
Nation	4	24	57	43
1994				
North Carolina	5	26	56	44
Southeast	3	19	50	50
Nation	4	24	56	44

North Carolina students improved at all levels of the NAEP fourth grade reading assessment between 1992 and 1994. While NAEP notes that the changes are not significantly different from a statistical standpoint, the improvements in fourth grade NAEP reading performance are consistent with improvements seen in reading performance on the North Carolina Test of Reading for Grade 4.

Average Fourth Grade Reading Proficiency

	1992		1994	
	Percentage and Proficiency			
All Students				
North Carolina	100	213	100	215
Southeast	100	212	100	209
Nation	100	216	100	213
White				
North Carolina	66	222	65	226
Southeast	63	221	63	220
Nation	69	224	68	223
Black				
North Carolina	28	195	26	195
Southeast	29	195	26	190
Nation	17	192	16	187
Hispanic				
North Carolina	5	193	4	190
Southeast	5	195	8	186
Nation	10	200	12	190
American Indian				
North Carolina	3	204	3	202
Southeast	1	***	1	***
Nation	2	206	2	201

*** Sample size too small for reliable measure

Between 1992 and 1994 North Carolina showed improvement in average NAEP fourth grade reading proficiency scores for all students, while the Southeast and the Nation as a whole showed declines. When scores are disaggregated by race, the same is true for white students. Black students in North Carolina held their own over the same period of time, while there were declines in the Southeast and in the Nation. North Carolina saw declines in Hispanic and American Indian student averages, as did the Southeast and the Nation, although the State decline was somewhat less than for the comparison groups (note: there were too few students in the sample for the Southeast to arrive at a reliable score).

A comparison between the 1992 and 1994 overall proficiency levels in fourth-grade reading for the 37 states that participated in the trial assessment both years can be seen in the diagram below. North Carolina was one of only six states showing improvement in its average score. Three states remained at the same level, while 28 declined. North Carolina not only moved ahead of the national average, but also scored higher in 1994 than all of the states with which it is most often compared.

NAEP 1992 and 1994 Trial State Reading Assessment: Grade 4
Overall Proficiency

1992 PERFORMANCE OF STATES		1994 PERFORMANCE OF STATES
New Hampshire	229	Maine
Maine	228	
North Dakota Iowa Massachusetts	227	
	226	North Dakota
Wisconsin	225	Wisconsin
Wyoming New Jersey	224	Iowa Massachusetts New Hampshire
Connecticut	223	Connecticut Montana
Nebraska Indiana Minnesota Utah Pennsylvania Virginia	222	Wyoming
Missouri	221	Nebraska Rhode Island Indiana
	220	New Jersey
	219	Minnesota
Rhode Island Colorado	218	Utah Missouri
West Virginia	217	
NATION New York	216	Pennsylvania
	215	**North Carolina**
Texas Kentucky Delaware	214	Colorado Virginia West Virginia Washington Tennessee
Tennessee Georgia **North Carolina**	213	Texas New York Kentucky NATION
SOUTHEAST Maryland Arkansas New Mexico	212	
South Carolina	211	Maryland
Arizona	210	Arkansas
Florida	209	Alabama SOUTHEAST
Alabama	208	Georgia
	207	Delaware Arizona
	206	Florida New Mexico
Louisiana	205	South Carolina
Hawaii	204	
California	203	Mississippi
	202	Hawaii
	201	
Mississippi	200	
	199	
	198	Louisiana California

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Eighth Grade Mathematics

Assessments of eighth grade mathematics were made in 1990 and in 1992 that allowed for comparing performance results with other states and with the nation as a whole. Since Congress did not fund state-level assessments in 1994, in a special arrangement with the National Center for Education Statistics and the Educational Testing Service, North Carolina re-administered the 1992 mathematics assessment to a sample of the State's eighth graders in 1994. The 1994 administration provided a third point in a trend analysis and permits an independent monitoring of progress in mathematics using national curriculum standards and the National Assessment. The new North Carolina mathematics curriculum, adopted in 1989, was not in place long enough to have an impact on the 1990 NAEP. but results of the revised curriculum can be seen beginning with the 1992 NAEP administration. The NAEP results shown here reflect the impact of aligning the North Carolina curriculum with national standards and of focusing classroom instruction on the new curriculum..

	Proficiency Descriptions
BASIC LEVEL	This level of performance signifies an understanding of arithmetic operations - including estimation - on whole numbers, decimals, fractions, and percents.
PROFICIENT LEVEL	Students at this level should apply mathematical concepts and procedures consistently to complex problems.
ADVANCED LEVEL	Students at the advanced level should be able to reach beyond the recognition, identification, and application of mathematical rules in order to generalize and synthesize concepts and principles.

Eighth Grade Mathematics Levels
(Percent)

	At or Above Advanced	At or Above Proficient	At or Above Basic	Below Basic
1990				
North Carolina	1	11	44	56
Southeast	2	15	48	52
Nation	2	19	57	43
1992				
North Carolina	1	15	53	47
Southeast	1	16	53	47
Nation	3	23	61	39
1994				
North Carolina	2	22	62	38

Average Eighth Grade Mathematics Proficiency			
	1990	1992	1994
North Carolina	250	258	266
Southeast	254	258	---
Nation	262	266	---

NAEP Grade 8 Mathematics Assessment
Overall Proficiency

NORTH CAROLINA		1992 STATE PERFORMANCE
	283	Iowa North Dakota
	282	Minnesota
	281	
	280	
	279	
	278	Maine New Hampshire
	277	Nebraska Wisconsin
	276	
	275	
	274	Idaho Wyoming Utah
	273	Connecticut
	272	Colorado Massachusetts
	271	New Jersey Pennsylvania
	270	Missouri
	269	Indiana
	268	
	267	Michigan Oklahoma Virginia Ohio
1994 North Carolina	266	NATION New York
	265	Arizona Rhode Island
	264	Maryland Texas
	263	
	262	(1990 NATION) Delaware
	261	Kentucky
	260	California South Carolina
	259	Florida New Mexico Georgia
1992 North Carolina	258	SOUTHEAST West Virginia Tennessee
	257	Hawaii
	256	
	255	Arkansas
	254	(1990 SOUTHEAST)
	253	
	252	
	251	Alabama
1990 North Carolina	250	
	249	Louisiana
	248	
	247	
	246	Mississippi

The 1990 NAEP mathematics assessment results were disappointing for North Carolina. The State was very near the bottom of all states taking the test. From 1990 to 1992, North Carolina

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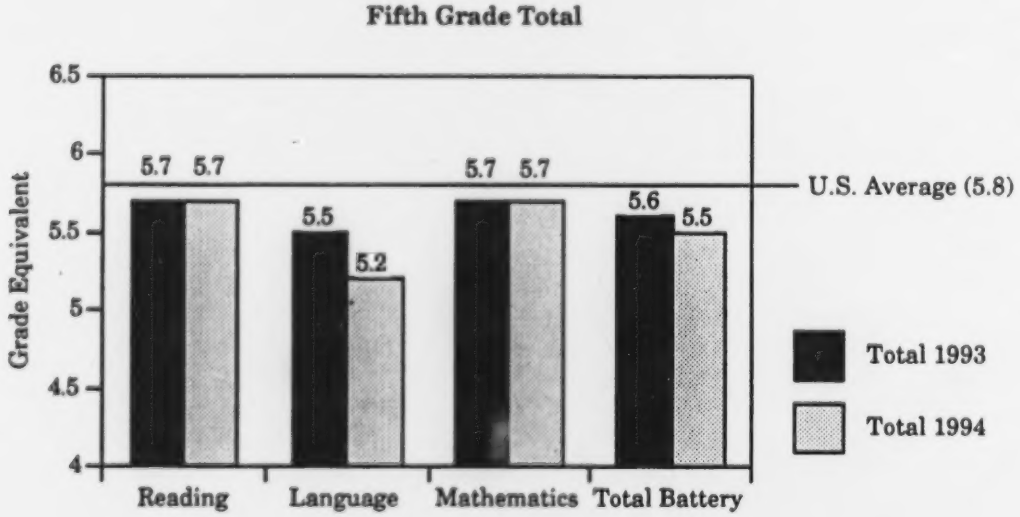
gained 8 points, fully twice the national average gain of 4 points. Clearly, the magnitude of this two-year gain was significant.

The 1994 results provide a decided indication that the State's classroom changes in mathematics are both substantial and solid. The gain from 1992 to 1994 is another 8 points. Of necessity, the analysis is limited to trend comparisons, since there was no 1994 national assessment of eighth grade mathematics. The State score of 266 cannot be directly compared to the 1992 national average score of 266, since there is every reason to believe that there would have been some national gain had the test been given in all states. Nevertheless, it is reasonable to assume that North Carolina has moved from number 39 out of 41 states on the NAEP eighth grade mathematics assessment to a position higher than that of about a dozen other states.

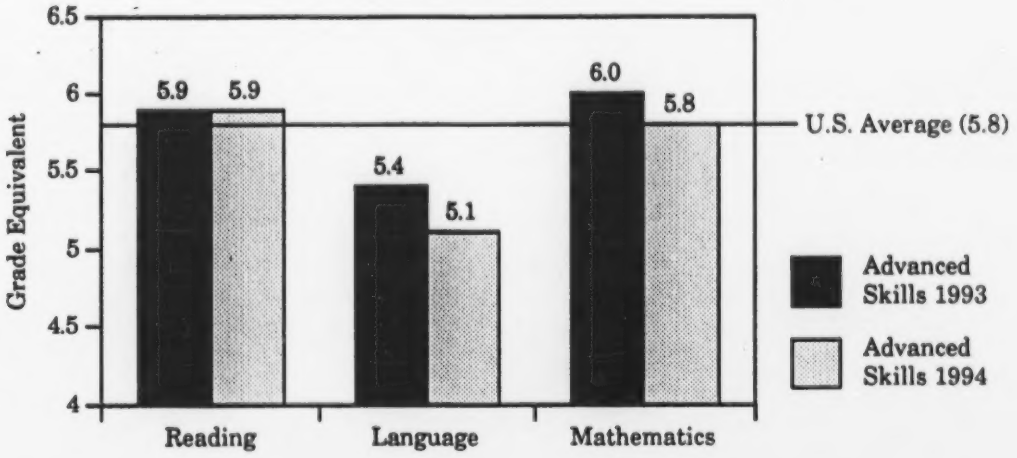
The most promising finding is the positive changes in the distribution of students on the achievement levels. In 1990, only 11 percent of North Carolina's students scored at the proficient level; in 1994, 22 percent scored at the proficient level. In 1990, 56 percent of the State's students scored "below basic." In 1992, the rate had improved to 47 percent, and, by 1994, those scoring below basic was 38 percent.

North Carolina Norm-Referenced Testing Program: Iowa Test of Basic Skills

For a number of years North Carolina administered the California Achievement Tests (CAT) to all students in grades 3, 6, and 8. However, curriculum improvements in the elementary grades - an integral part of the State's recent education reforms - required that a different means be developed for measuring student performance. Beginning in 1993, a new series of state-developed tests were administered to all students in grades three through eight, and the State no longer administers the CAT. However, to allow for annual comparisons with national indicators of student achievement, the State provides for the administration of a national norm-referenced test to a sample of North Carolina students that is representative of all students. The Iowa Test of Basic Skills (ITBS) was selected and was administered by the Department of Public Instruction to a sample of fifth grade and eighth grade students in 1993 and 1994. The results are summarized in the charts that follow.

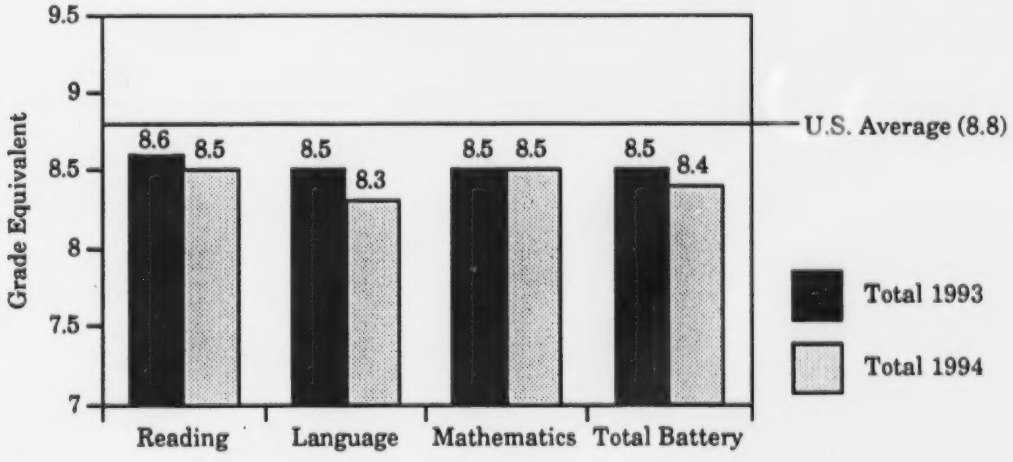


Fifth Grade Advanced Skills

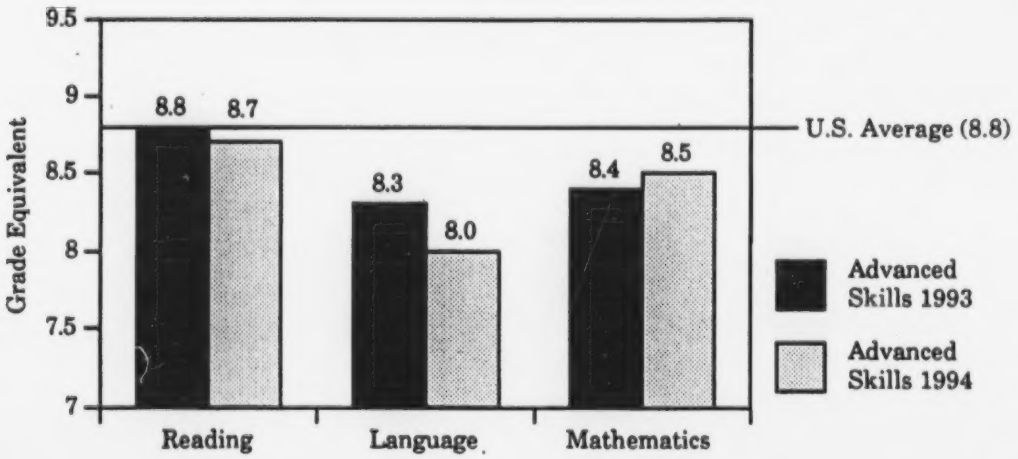


The average for the sample of North Carolina fifth-grade students was below the national norm in 1993 on the total battery and on the total for reading, language, and mathematics. Performance in 1994 remained the same for reading and mathematics, while it declined somewhat for language and slightly for the total battery. For advanced skills, North Carolina's fifth graders scored above the national average in 1993 for reading and mathematics and below the national average for language. The 1994 average remained steady for reading and dropped slightly to the national average for mathematics; the total battery score also declined slightly and somewhat more for language.

Eighth Grade Total



Eighth Grade Advanced Skills

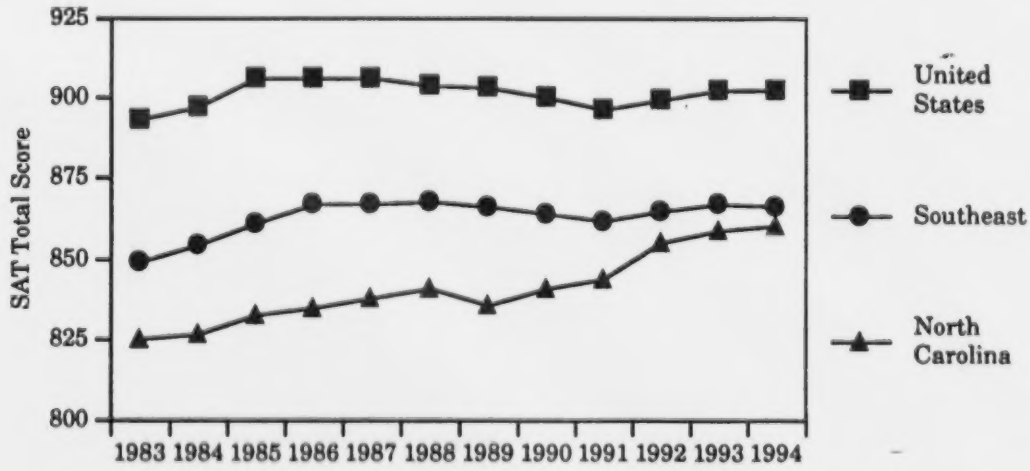


The average for the 1993 sample of North Carolina eighth-grade students was below the national norms on the total battery and on the total for reading, language, and mathematics. In 1994, performance remained the same for mathematics, but declined slightly for reading and the total battery, and somewhat more in language. For advanced skills, performance on the reading portion of the ITBS was at the national average in 1993, but declined slightly in 1994. The average scores on advanced skills in language and mathematics were below the national norms in 1993 and declined in 1994.

The Scholastic Assessment Test

The Scholastic Assessment Test (SAT) is the single measure most widely used by colleges and universities in North Carolina and many other states to predict the likelihood of success in higher education for high school graduates. For that reason, it is often included among the performance measures considered by the public and by policy makers in judging the academic health of secondary schools.

Scholastic Assessment Test Trends



Since 1985, the trend in North Carolina scores on the SAT has been steadily upward, except for 1989, when a drop of 4 points caused the State to place last among all the states. Beginning in 1989, teachers, principals, policy makers and parents have focused on improving the quality of instruction especially in content areas closely related to material included on the SAT. In 1994, North Carolina achieved its highest average SAT score ever - 860 - as well a matching its highest percentage ever of graduating seniors taking the SAT - 60 percent. For the fifth consecutive year, North Carolina has improved its SAT score. An increase of 19 points between 1990 and 1994 is particularly encouraging when compared to the 1-point decline in the national average for the same period. Compared to the Southeast average, the gap has been narrowed from 23 points to 6 points during the period. However, the score remains below the national average and the southeast average.

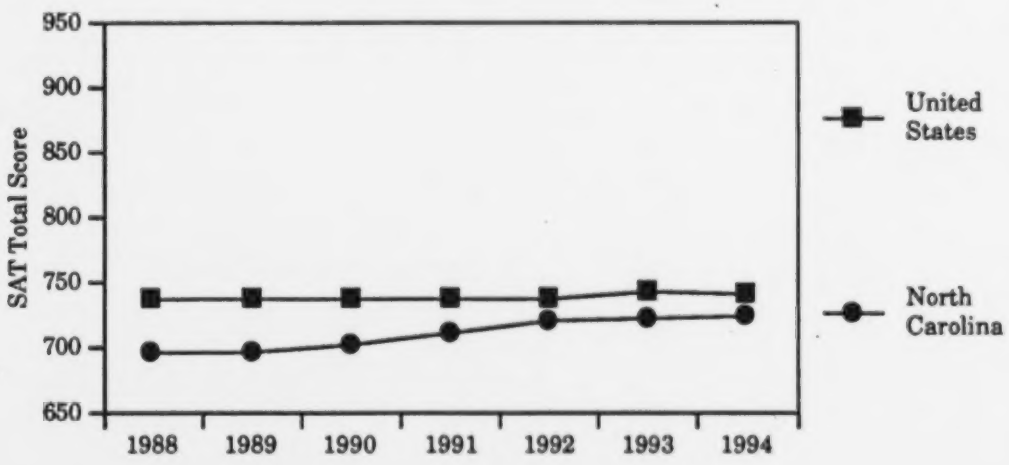
SAT Scores for Selected States
(Percent Taking SAT in 1994 in Parentheses)

State	1992 Total	1993 Total	1994 Total	1994 Rank*	Change 1990-1994
Connecticut (80%)	900	904	898	8	0
D.C. (53%)	842	846	849	22	-1
Florida (49%)	884	882	879	19	-5
Georgia (65%)	842	844	844	23	0
Indiana (60%)	868	869	876	20	+9
New Hampshire (69%)	923	929	924	2	-4
New York (76%)	882	887	888	13	+6
North Carolina (60%)	**855**	**859**	**860**	**21**	**+19**
Oregon (53%)	925	933	927	1	+5
South Carolina (60%)	831	838	838	24	+4
Virginia (65%)	893	894	893	10	-2
Washington (49%)	916	921	922	3	-1

*Out of 24 states with at least 40 percent of seniors taking the SAT in 1994

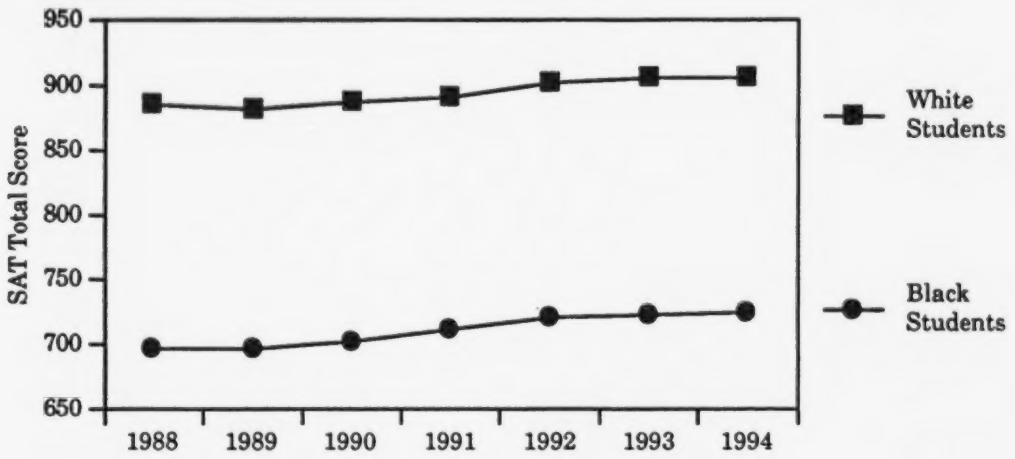
Twenty-four states administered the SAT to 40 percent or more of their seniors in 1994. The percentages ranged from 46 percent in California to 80 percent in Connecticut Of particular concern is that despite an increase over time, only 60 percent of North Carolina graduates take the SAT.

Trends in SAT Performance by Black Students



While it is encouraging that black students in North Carolina have made greater gains on the average than white students and compare favorably with black students nationally, it is discouraging that within North Carolina they continue to average 182 points behind points behind the average for white students.

Trends in SAT Performance by N.C. White Students and Black Students



Addressing National Standards: A Summary

For many years North Carolina policy makers and other citizens had a limited amount of information upon which they might draw to compare student performance in the State's public schools to students in other states and in the nation as a whole. Since 1990, however, state level data have become available from the National Assessment of Educational Progress and from the State's administration of the Iowa Test of Basic Skills. In addition, the Scholastic Assessment Test continues to provide comparative information about college-bound students, as it has for a number of years.

Only now, however, is the State able to observe trends in comparative performance, and, except for the SAT, they are early trends. The results are mixed.

For NAEP, the performance of students on the fourth grade reading assessment showed improvement between 1992 and 1994 in all four proficiency categories for North Carolina students, while there were declines for students in the Southeast and the Nation.
Similarly, the average score for all of the State's students was up while it decreased in the Southeast and the Nation for all students and for each subgroup; however, in North Carolina the average score went up only for white students, while it remained at the same level for black students and declined for Hispanic and American Indian students. For NAEP eighth grade mathematics, the trend line is improving for students in North Carolina, the Southeast, and the Nation. In North Carolina, however, the rate of improvement has been somewhat greater, and now the State appears to have passed the rest of the Southeast and is very close to the National average.

In comparing the results of the ITBS, the picture is somewhat different. North Carolina's fifth grade students in 1994 scored either at the same level or less well than their 1993 counterparts on the various components of the test. In all cases except one, the scores in 1994 were below the national norms. Similarly, the North Carolina eighth grade ITBS scores declined or remained at

the same level when comparing 1993 and 1994. The scores in 1994 were below the national norms, as well.

On the other hand, performance on the Scholastic Assessment Test has shown marked improvement since 1989. The combined verbal and mathematics score has climbed by 19 points since the State's results placed it in last place among all states. No other state has had a rate of improvement that approaches this performance. Still, both the participation rate and the scores must continue to make major improvements, according to most informed persons, for North Carolina to claim a high level of achievement.

When taken together, recent trends in North Carolina student performance on measures that can be compared with other states and the nation are mixed, but generally they are encouraging. At the same time, it must be emphasized that the State has a long way to go to reach an acceptable overall level of student achievement throughout the public school system. Nevertheless, the short term results reported here suggest that the reforms of the past two decades are beginning to take hold in terms of improving student academic performance.

Section 3. Program Equity: Participation in Academic Courses

Actions taken over the past decade designed to help the State reach a goal of making important academic programs available on an equitable basis to students throughout North Carolina were described in Section 1 of this report. Among the measures employed to determine how well that goal is being reached is the rate of participation in academic courses, particularly the more advanced courses. Increasing participation rates indicate not only that more students are taking the courses--a positive sign in itself--but that the courses are becoming more available to a broader range of students.

Participation and Performance in Selective High School Courses

Course	Baseline Year	Baseline Participation Rate Average Score	1993-94 Participation Rate Average Score
Geometry	1989	51.1% 37.7	66.4% 39.9
Algebra II	1987	39.6% 37.7	51.9% 37.6
Chemistry	1989	37.8% 37.5	47.0% 39.1
Physics	1990	11.5% 38.3	13.8% 39.7
(Algebra I was considered to be a selective course in the baseline year of 1986. It is now required for high school graduation, beginning with the class of 1996.)			
Algebra I	1986	67.8% 37.7	86.4% (a) 39.9

(a) Algebra I participation and performance is shown for 1992-93 because the test changed in 1993-94 and cannot be compared with earlier years.

As can be seen from the chart above, participation in selective high school mathematics and science courses has increased over the past decade. The increase in percentage equates, for example, to more than 10,000 additional students in North Carolina taking geometry in 1994 than in 1989. For chemistry, the number increased by 5,000 over the same period. The increases in participation also have been associated with increases in performance, as measured by end-of-course test scores. in all subjects except Algebra II, which has maintained essentially the same level of performance.

In addition, it should be noted that the percentage of students taking Algebra I in the eighth grade (as compared to the ninth grade, which has long been the "usual" year for taking the course) has almost doubled in the last decade, from 15.8 percent in 1986 to 29.2 percent in 1994. Students taking Algebra I in the eighth grade may then take four years of mathematics beyond the Algebra I level in high school, rather than three years.

Students Taking 18 or More Academic Courses in High School

	1988-89	1993-94	Gain
Nation (a)	66%	68%	+2%
North Carolina	58%	62%	+4%

(a) Based on students taking the Mathematics section of the SAT)

Although still behind the national figure, in the past five years the percentage of students taking 18 or more academic courses in high school has grown at a faster rate in North Carolina than in the nation.

North Carolina Advanced Placement Program Participation

Year	Number of Candidates	Number of Exams
1988	6,375	8,774
1989	6,832	9,526
1990	7,623	10,872
1991	8,204	11,803
1992	9,479	13,632
1993	11,523	16,747
1994	13,584	20,345

The Advanced Placement Program of the College Board provides examinations in a variety of college-level courses available to high school students enrolled in AP courses. Students who successfully complete an examination are usually granted credit for the course by most colleges and universities when they enter.

In the past six years the number of North Carolina students taking one or more Advanced Placement Program examinations increased by 113 percent. In addition, students in 1994 took examinations in more courses on the average than did students in 1988. The number of examinations increased by 132 percent.

In summary, it can be seen that there is a pronounced increase in the number of North Carolina students enrolling in advanced level courses in high school. These courses are those included in the *Standard Course of Study*, as well as those provided through the Advanced Placement Program. By implication, it can be concluded that there is an increased level of equity in opportunity for students to enroll in advanced program offerings throughout the state.

Section 4: Standards: The Changing Meaning of Competence

Competence Defined-1

As noted in Section 1 of this report, the North Carolina General Assembly first provided for statewide testing of students through legislation enacted in 1977. Since 1978, all students have been required to pass a minimum competency test(MCT) in order to receive a high school diploma. The MCT was designed to identify students who possess the minimal level of "skills and knowledge necessary to function as members of society," as that level was defined in 1978. The objectives that the tests measured were identified through a broad consensus effort involving educators and citizens from across the State. It was generally acknowledged that the skills identified were at the middle grades level, as defined by a curriculum and expectations for students in the late 1970s. At the time, the reading level on the test was that of a typical sixth grader. More recently, however, an analysis of the test set the reading level as typical of about the fourth grade, and comparable to *The Boy Scout Manual* and *Charlotte's Webb*.

Competence Defined-2

At its February, 1995 meeting, the State Board of Education approved a new definition of academic competence for students. The change followed lengthy consideration and evolved out the conviction that minimum levels of competence, especially as defined by the expectations of the 1970s, were far less than adequate for today's high school graduates. The State Board action replaced the old North Carolina Minimum Competency Tests with standards in reading and mathematics as measured by the Grade 8 End-of-Grade tests. These tests measure the goals and objectives of the revised *Standard Course of Study* for eighth grade. They represent skills comparable to national standards in reading and mathematics, and reflect what students need to know and be able to do in the 1990s to be able to work in the 21st Century. Beginning with 1994-95 ninth-graders, students must demonstrate Level III performance on these tests before receiving a high school diploma. Level III is a high standard that identifies eighth-grade students who consistently demonstrate that they are well-prepared for high school. They are capable of reading high school texts with understanding and pursuing advanced high school mathematics. By contrast, Level II eighth-grade students are minimally prepared for high school and have inconsistent mastery of skills. The reading level of the tests is typical of solid eighth grade and is in the range of the GED Test, the *Microwave Owner's Manual*, *National Geographic Magazine*, *USA Today*, and *Dr. Zhivago*.

Competence Definitions Compared

Some concrete examples of what the old and new competency standards represent can be seen by comparing similar items from the Minimum Competency Tests and the End-of-Eighth Grade Tests as shown on the following page.

The first example is a typical item from the old test. It is a good 1970s item for which students have to calculate a simple percentage increase. It is a good 1970s skill--it is what was expected of an entry-level employee in a non-skilled job.

Typical Minimum Competency Test Item

Curriculum Objective: *The student will compute using percents. The student will solve problems involving money matters.*

If the sales tax is 4%, how much sales tax is there on a restaurant bill of $7.25?

a) 8 cents
b) 11 cents
c) 28 cents
> d) 29 cents

Typical End-of-Eighth-Grade Test Items

Curriculum Objective: *Select appropriate operations, strategies, and methods of solving a variety of application problems using real numbers, justifying the selection.*

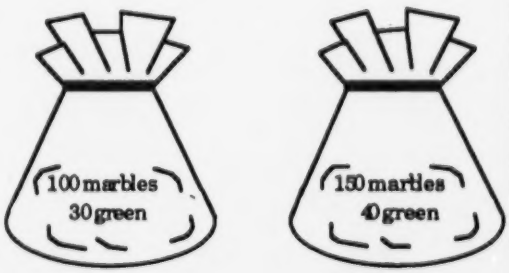
Bert bought a T-shirt that was reduced 25%. If the original price of the T-shirt was $15, how much should Bert pay for the T-shirt, including 6% sales tax?

a) $3.98
b) $11.85
> c) $11.93
d) $13.10

Curriculum Objective: *Find the probability of simple and compound events using experiments, computer simulations, random number generation, and theoretical methods.*

What is the probability of reaching into the bag without looking and pulling out a green marble?

> a) greater for Bag 1 than Bag 2
b) greater for Bag 2 than Bag 1
c) the same for both bags
d) cannot be determined from the information given



Bag 1 Bag 2

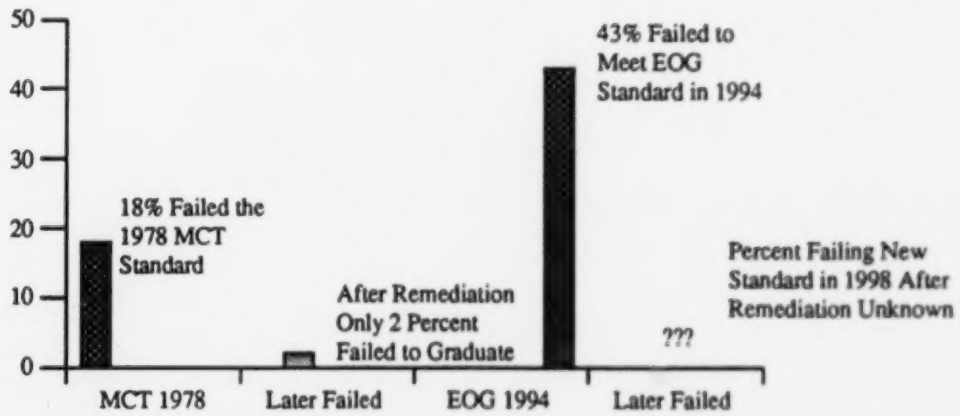
The second two items are examples from the new end-of-grade test. They test objectives similar to the objective for the 1970s example; however, the increased complexity represents the skills needed for entry-level jobs in 1995. A student must be able to successfully complete multiple functions at much higher levels.

In 1978, at the first administration of the North Carolina Minimum Competency Tests, 90 percent of juniors passed reading and 85 percent passed mathematics. By 1988, the last time data were collected statewide, 93 percent of sophomores passed reading, and 90 percent passed mathematics. When students took the test again, after remediation, approximately half would pass each time, so that eventually, only about one to two percent of students failed to receive a diploma because of an inability to pass the Minimum Competency Tests.

As noted earlier, the new competency requirement established by the State Board of Education specifies that students must demonstrate Level III performance on the eighth grade tests before receiving a high school diploma. In 1994, 31.4 percent of eighth-grade students did not meet the new standard in reading and 40.4 percent did not meet the mathematics standard. Students who did not meet the standards will have four years to receive help with skills and several opportunities to take the tests again prior to their anticipated graduation in 1998. In subsequent years, students will take the tests again no later than the tenth grade. In addition to remediation efforts, students who do not meet the standards on the first try will be given the opportunity to take the tests again at least once a year, and seniors may take the test during the last month of school.

Competency Test Results Compared

The February, 1995 action of the State Board of Education marked the first time in 18 years that the minimum competency standards were raised. The figure below illustrates the magnitude of the increase reflected in the new standards.

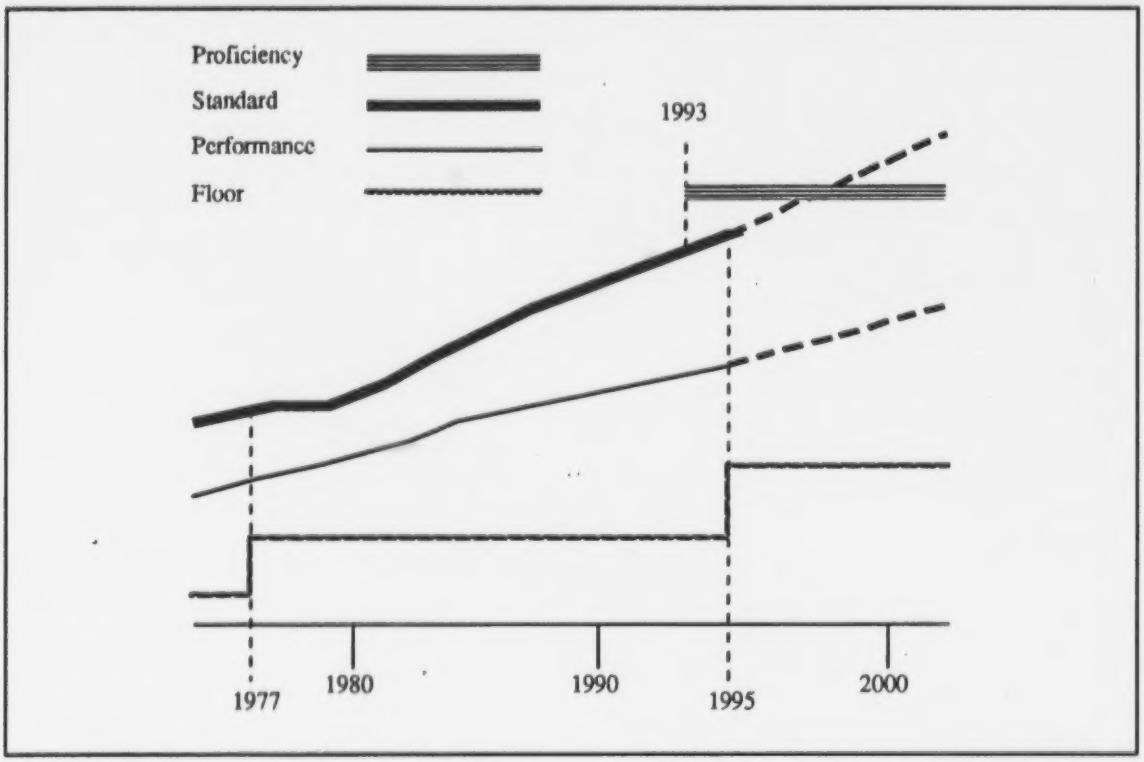


The first column shows that when the first Minimum Competency Test was administered in 1978 that only 18 percent of students did not meet one or more of the standards when first tested. After remediation only two percent failed to meet the standards and did not receive a diploma.

The second column shows student performance on the new, higher competency standard. Forty-three percent failed to reach the **fully proficient** level on either reading, mathematics, or both on their first try. Obviously, this represents a far more stringent standard than students were expected to achieve in 1978. Those students who did not meet the new standard in 1994 will now become involved in remediation programs. Only time will tell how many of them will benefit from the interventions and go on to become eligible for their diplomas in 1998.

Section 5. Summary

A composite view of the effects of twenty years of reform, of addressing national standards, and of redefining competence is illustrated in this diagram.



In response to legislation enacted by the 1977 General Assembly, the State Board of Education established the first ever minimum competency requirement for North Carolina high school graduates. This can be seen as the achievement floor, at or above which all students who sought a high school diploma must perform. In 1995, the floor was raised significantly in recognition of the need for students entering the twenty-first century not merely to be minimally competent, but to be proficient in the basic skills required of workers and learners in a technologically-oriented society.

As can be seen, the proficiency expectations line has also moved upward, and at an increasing rate. In 1985, the Basic Education Program adopted by the State Board of Education required that the *State's Standard Course of Study* be revised to reflect a much broader base of learning opportunities and support for North Carolina children and youth. In 1991, the State Board increased graduation requirements with the addition of Algebra I and biology for all students. By 1993, almost the entire newly revised standard course of study was in the schools, representing higher standards, aligned with national course standards. In 1993, the new State testing program for grades 3 to 8, aligned with the *Standard Course of Study* , was administered for the first time. And, by the year 2000, graduates must demonstrate computer proficiency. In 1993, also, the State Board established for the first time specific (and rigorous) student proficiency expectations for all students in grades three through eight and for students in core and advanced high school courses.

Much remains to be done for North Carolina students to reach levels of academic performance that ensure there is an opportunity for success for them all. New reforms will be called for, and some are already on the way. New standards will be established as policy makers increase their understanding of tomorrow's needs. Nevertheless, it appears that nearly two decades of groundwork is reaching fruition, and that North Carolina now is now ready to move its education system toward the long-held goal of not only providing equal opportunities in education for all, but of ensuring that there are equal opportunities for excellence in that education.

Other Publications

Information in this report was extracted from the following publications which are available from the North Carolina Department of Public Instruction, 301 North Wilmington Street, Raleigh, NC 27601-2825:

The North Carolina 1994 Scholastic Assessment Test Report (Division of Testing and Reporting; a new report is published annually)

The 1993-94 State Testing Results (Division of Testing and Reporting; a new report is published annually)

The Basic Education Program for North Carolina's Public Schools (North Carolina Department of Public Instruction; revised, October, 1994)

Other publications from which data were extracted for this report are as follows:

NAEP 1992 Reading State Report for North Carolina (U.S. Department of Education)

NAEP 1992 Mathematics State Report for North Carolina (U.S. Department of Education)

1994 NAEP Reading: A First Look (U. S. Department of Education)

Other publications containing school and student performance information published annually by the North Carolina Department of Public Instruction:

North Carolina Public Schools Statistical Profile (Information Center/Office of Financial Services)

How North Carolina Ranks Educationally Among the Fifty States (Information Center/Office of Financial Services)

The Report Card—The State of School Systems in North Carolina (Division of Testing and Reporting)